June 16, 1986

TO:

Barbee, W.D. - UNOLS
Dudley, J. - LDGO
Gerard, S. - LDGO
Hayes, D. - LDGO
Leyden, R. - LDGO
Raleigh, B. - LDGO
Ruddiman, W. - LDGO
Ryan, W.F.B. - LDGO
Sykes, L.R. - LDGO
Takahashi, T. - LDGO
Science Officer - CONRAD
Captain - CONRAD

RESEARCH CRUISE REPORT

R/V ROBERT D. CONRAD 27-02

Attached is a copy of a cruise report for the above CONRAD cruise.

Ann Burns
Marine Office

Enc.

CRUISE REPORT
RC-2702

BROOME - PORT HEDLAND (AUSTRALIA)
MARCH 23 - APRIL 23, 1986

DEEP CRUSTAL STUDY OF THE PASSIVE CONTINENTAL MARGIN OFF N.W. AUSTRALIA

John C. Mutter

CRUISE OBJECTIVES

The object of the investigation carried out during RC-2702 was to determine the deep crustal structure of the Jurassic-age passive continental margin off N.W. Australia. This region has been extensively mapped by commercial multichannel seismic profiling as part of hydrocarbon search, and numerous exploration wells have been sunk on the continental shelf basins and also in the relatively deep water regions. From these data and the published literature, we know that the margin, including the vast Exmouth Plateau, experienced a period of extensional tectonics prior to the continental separation that formed the Cuvier, Gascoyne and Argo Basins in the Late Jurassic. Unlike the similarly-aged margin off the U.S. East Coast, where huge volumes of sediments have been deposited, this margin has been sediment starved in many places and clearly shows major extensional fault blocks covered by as little as 1000 m of sediment. The entire structural fabric of the Exmouth Plateau seems to be formed of extensional structures.

Current models for the development of passive margins account for these extensional features as the result of a period of lithospheric stretching that is intimately tied to the process of continental breakup, margin subsidence and seafloor spreading. Reflection seismic data and well studies often support this interpretation although many margins show features that are not easily explained by the stretching model.

Our overall objective was to determine the deep crustal structure of this ancient margin for which there is clear evidence for extensional tectonics from shallow observations. It is expected that the deep crust will behave differently from the shallow crust, being likely to deform in a more ductile manner. A typical passive margin exhibits a relatively steep continental slope beneath which the extended crust should lie, but because of this

physiographic setting, few good seismic characterizations of stretched crust are available. The N.W. Australian margin and the Exmouth Plateau, in particular, provide a relatively sediment free and broad region in which to derive seismic measurements of the physical properties of the margin's crust.

The investigation was laid out in three major transects. One crossing the margin from continental shelf, through the Exmouth Plateau and to the Gascoyne Basin (Transect E); another crossing the transform margin where the Cuvier Basin lies adjacent to the Exmouth Plateau (Transect CR); the third crosses the Cuvier margin south of the transform where no plateau is present (Transect C). Each transect comprises a suite of two ship Expanded Spread Profiles (ESPs), of which critical ones were planned to have both airgun and explosive runs. The ESP transects were planned to be complimented by Wide Aperture CDP profiling (WACDP) run perpendicular to the margin segments through the ESP midpoints (see Figure 1).

The investigation was a collaborative study involving Lamont-Doherty Geological Observatory, University of Rhode Island's Graduate School of Oceanography, and the Australian Bureau of Mineral Resources (BMR), whose vessel, RIG SEISMIC, took part in field operations.

PERSONNEL

J.C. Mutter, L-DGO	Chief Scientist
*R.L. Larson, URI/GSO	Co-Chief Scientist
****P. Buhl, L-DGO	Two-ship acquisition specialist
***J.B. Diebold, L-DGO	Explosives, airgun specialist
J. Smith, L-DGO	Science Officer
**J. Stennett, L-DGO	Senior Elect. Technician
C. Gutierrez, L-DGO	Elect. Technician
**S. LaBrecque, L-DGO	Elect. Technician
K. Feigl, L-DGO	Programmer
*F. Brassil, BMR	Watchstander
F. Robinson, L-DGO	Watchstander
J. Alsop, L-DGO	Watchstander
C. Zehnder, L-DGO	Watchstander
K. Dadey, URI/GSO	Watchstander
S. Fontana, URI/GSO	Watchstander
M. Iltzsche, L-DGO	Airguns
J. DiBernardo, L-DGO	Airguns

*Departed vessel April 10, 1986
**Shared watchstanding duties in place of F. Brassil after April 10, 1986
***Departed vessel March 31, 1986
****Aboard RIG SEISMIC, departed March 31, 1986

Data Acquisition

ESPs. Two types of ESPs were obtained: One in which only air guns were used as sound source using CONRAD's ten-gun array with a total volume of 5821 cu. inches; a second in which the closing ranges were acquired with air guns, and expanding ranges were obtained using 20 or 25 kg charges deployed every 7 or 8 minutes. Nine ESPs were acquired with both airguns and explosive sound sources, ten with airguns only.

WACDP. RIG SEISMIC and CONRAD were used in the standard in-line configuration of wide-aperture profiling. Both ships had 48-element streamers with 50 m group spacing. RIG SEISMIC was used as lead ship because its weak source (1000 cu. inch) was considered unlikely to be successfully combined with the much larger volume source available on CONRAD. In this configuration CONRAD's gun would provide the seismic source for offsets 0-2.4 km and 2.4-4.8 km, giving continuous data with these guns for 0-4.8 km; the weaker RIG SEISMIC source covering the larger offsets 4.8-7.2 km.

CDP. ESP reshoots and some connecting lines were obtained by CONRAD as 48-fold, normal CDP data. Guns 1, 2, 9 and 10 of the standard ESP array were used mid-leg, and a nine-gun array was employed for the final reshoots.

Cruise Narrative

March 23: sailed from Broome outer anchorage at 2300 local.

March 24 - 25: transit from Broome to commencement of work. During transit explosives were test fired. A number of problems became apparent. First, it was known that the explosives had a density of near to or slightly less than that of water and, hence, would probably require ballasting in order to sink to a suitable depth before detonation. The explosives were provided in boxes weighing 25 kg, each box containing 50, 1/2 kg charges in plastic tubular containers. These individual charges were indeed found to float readily. The explosive material packaged in a plastic "sausage" within the cylinder sank slowly. We had been provided with building bricks as ballast material, approximately one, 4 kg brick for each box of charge. On testing this ballast we found it inadequate - the box remaining visible on the surface for some distance before apparently sinking very slowly. We judged that three bricks per box would be required and quickly made this known to the BMR chief scientists. We arranged for extra bricks to be brought out to the ship on the 31st when John Diebold was due to disembark. Secondly, we experienced considerable difficulty detonating the charges by conventional techniques. Except for the pull-wire fuse lighters, all components were supplied by BMR from ICI, and the explosives themselves, ICI POWERGEL, was a new product that had not been used at sea before. We had little initial notion of the source of the problem since we had no previous experience with the charges. We finally isolated the problem to the fuse by performing tests on a series of 1/2 kg charges, all equally weighted:

1) with 18" fuse
2) with 72" fuse - the length needed for large charges
3) with 72" fuse PAINTED with gray vynox paint supplied by the boatswain.

We had begun to suspect the fuse when we noted that initial ballast test runs indicated failures only when the long 72" fuse was used, regardless of charge size.

The above systematic test gave 1) 100% detonation, 2) 64% detonation, 3) 100% detonation; each test made with 7 to 10 individual charge deployments. We were obliged to conclude that the fuse was not waterproof, although during radiophone communication with ICI in Port Hedland it was several times restated that the fuse was waterproof. ICI eventually conceded that the fuse was indeed the source of the problem, and supplied us with another role of fuse together with 300 sections of fuse they painted themselves. These were available for use after rendezvous with the supply boat on the 31st.

The explosives provided were clearly inappropriate for our use. The individual charges had screw connections to allow several to be joined and loaded into shot holes on land--the appropriate use for this type charges. Their low density, which is not a factor in land operations, is of concern in marine operations in that charges that failed to detonate may well float to the surface. Because we were required to simultaneously learn how to correctly ballast and detonate these charges, it seemed likely that we deployed a number of poorly ballasted, undetonated charges. Although fuse and detonator would quickly become water logged and the charges would become relatively safe, the notion that we have deployed explosive charges that float unless correctly ballasted was a disquieting one.

As a safety precaution, we decided to abandon the explosive runs planned for the continental shelf areas. The information provided to us suggested that the explosives would become inert if they sink beneath 1000 feet. Hence any undetonated charge, even if it was properly ballasted to sink, would not

reach these depths in shelf areas and be a potential hazard. We decided to use the charges on ESPs initially planned for only airgun shooting.

March 26: Acquired first ESP, ESP E5, in central Exmouth Plateau. Following the procedure adopted during the East Pacific Rise cruise, we obtained the data by shooting from the opposite end points, collecting airgun data until the shooting ship (CONRAD) was abeam of the receiving ship's (RIG SEISMIC) tailbuoy. The guns were then retrieved and we set up for explosives, commencing about 60 min. after the crossing. Shots were fired at 7 min. intervals until the end of the line. Initially we made charges by placing three bricks inside the boxes, requiring us to remove and re-box 5 kg of charge for each shot. During this run we had only two misfired charges in 38 attempts - 95% detonation rate.

The full airgun array was not initially used because it was found that the two diesel driven compressors alone could not maintain the desired pressure. The 825 cu. inch gun was shut down, giving a total volume of 5966 cu. inches.

March 27: Acquired ESP E4 with air guns and explosives as above. Detonation rate was poor, only 64%, although fuses had been painted. The fuses had been trimmed at both ends several hours prior to the explosive run and this was sufficient time for them to absorb enough water to affect the detonation rate. For these two and subsequent ESPs shot with explosives only the two inner air guns were brought on board, the remaining eight simply raised on the booms and the hose bundles left trailing. We began taping the three-brick ballast to one end of the box of explosives so that each charge was 25 kg.

March 28: Acquired ESP E3 with air guns and explosives as described above. Fuses were cut about 4 inches longer than necessary, heavily painted

to seal both ends, and trimmed as needed immediately before use. In this way success rate improved to 87%. Streamer deployed on transit from ESP's E3 to E2. The bladder apparatus for calibrating streamer depth transducer, DT's, was broken during streamer work so the nearest three DT's could only be zeroed, not fully calibrated. All ten guns now firing on three compressors.

March 29: On approach to commence ESP E2, CONRAD's main propulsion engine failed at 0200. Guns and streamer were hurriedly brought on board using only bow prop to maintain forward motion. A diver was sent over at 0800 to check the prop for entanglement. None was found and problem was traced to a gear that had been badly installed in Singapore. The repair was carried out quickly, streamer re-deployed and ESP's E2 was acquired using the gun array only, beginning at 1400.

March 30: Acquired ESP E1, air guns only. Then in the late evening rendezvoused with supply boat NORMA M to take on two pallets of bricks, ICI fuse, fiberglass tape and engine room supplies. John Diebold disembarked.

March 31 - April 2: Began WACDP line across Exmouth Plateau 1039 L on 31st. Whole line shot with full gun array at maximum working pressure using three compressors. RIG SEISMIC fired on the even minute, CONRAD on the half minute, each ship making 20 sec records. Ship separation 5345 m or 118.6 Raydist lanes.

April 3: Ended WACDP line at 0925, began ESP E9 at 1845. On the run toward the midpoint we observed a major basement high forming a seamount along the track. The ESP was terminated just past the midpoint at 2320.

April 4: Transited to a location about 10 n.m. east of E9 and acquired another ESP beginning from the midpoint working south. It too showed unexpected topography. Neither of these two partial ESP's will be very satisfactory. ESP E8, slightly shifted to avoid possible topography was also

acquired this day. Streamer retrieved.

April 5: Acquired ESP E7 with explosives and air guns, and using ICI fuse. Detonation rate 95%. No explanation for misfires. Fuse so thickly painted it was sometimes difficult to get detonators and fuse lighters over them. Two shots late for this reason.

April 6: Acquired ESP E6 as above; detonation rate 100%. This completed Exmouth Transect except for normal incidence reshoots of E6 and E7. We then transited to ESP CR3 which we decided to shoot with explosives also.

April 7: Acquired ESP CR3 with 100% explosive detonation rate. Began ESP CR2A after deploying streamer.

April 8: Acquired ESP CR2A, located between location of ESP's CR2 and CR3, and shot ESP CR2, both with air guns only.

April 9: Completed ESP CR1 through its midpoint and approximately 15 n.m. past then broke off work to rendezvous with RIG SEISMIC. Roger Larson, Frank Brassil (BMR) and Mike Murphy (engineer) disembarked. Personnel transfer was made while underway in fairly heavy sea using the new Avon which had considerable difficulty keeping pace with CONRAD, even though our speed was only about 3 knots. RIG SEISMIC then departed for Exmouth to make a crew change and CONRAD worked toward the southern end point of ESP E7 to conduct normal incidence reshoots. During the transit to the re-shoots we acquired CDP data using guns 1, 2, 9 and 10 for a volume of 1750 cu. inch, at 20 sec, 12 sec records.

April 10: CDP reshoot of E7. Work toward and commence reshoot E6.

April 11: Complete reshoot E6. Rendezvous with RIG SEISMIC 0800, transfer replacement engineer together with engineer room stores; again made very difficult by disastrously underpowered rescue boat. Commenced WACDP line for Cape Range Fracture Zone Transect at 1800.

April 12: Complete WACDP line, Cape Range Fracture Zone Transect.

April 13 - 14: Second major equipment failure on CONRAD. At 0030, on approach to commence ESP CR4 the bridge control to the ship's steering failed, causing the rudder to go hard over to the right. CONRAD's main engines were immediately shut down but not before the ship had come around considerably. Power to the bow propeller was immediately brought up, but before this means of propulsion and steering could be used, the streamer appeared ahead of the vessel, the residual forward motion of the vessel plus the prevailing wind conspired to effect a turn of approximately 270°. Thus the bow propeller could not be immediately used for fear of fouling the streamer. After passing the streamer the bow propeller was used to turn out of the "bite" developed by the unavoidable vessel's maneuver. The streamer was brought in to the head of the first active section, and the remainder was kept in tow using the bow propulsion. The effect of the speed reduction and sharp turn, however, was to firmly entangle starboard side airgun firing lines in the main propeller. This describes the vessel's condition at approximately 0400/13th.

At first light, two divers cleared approximately 30' of the entangled lines and reported the fouling to be severe. Engineers Davis and Nissan did the diving despite the presence of two sharks, often very close to the divers. Diving stopped when Davis' air tank was depleted. A call was made to RIG SEISMIC for assistance and they were fortunately able to supply a new tank and refill the empty tank. A diver also volunteered to assist. We brought the streamer in completely by noon and a second attempt to free the prop began around 1630, RIG SEISMIC having been some distance away when advised of our situation. With three divers, two with snorkels, one with diving tank, the prop was cleared by around 1730.

The steering gear was not, in fact, repaired and we continued using the

Sperry autopilot which was poorly tuned to the ship's motion and tended to hunt around the correct heading. The non follow-up on the starboard bridge wing control system was capable of being employed for manual steering but was not. Streamer was back in the water by 0030/14th and we began ESP CR4 at 0410. Air gun #3 was not operative and in increasingly heavy beam seas we kept inboard guns 5 and 6 on board also for fear of entanglement with streamer.

Loss of time due to this failure was compensated by shooting ESPs C1 and C5 through only half their planned extent - C5 from midpoint to end points, C1 from end to midpoints. We also slightly curtailed the WACDP line.

ESP CR4 was eventually completed on April 14, and WACDP line across Cuvier Basin begun.

April 15 - 16: WACDP line across Cuvier Basin and margin completed, and ESP C5, air guns only, shot from midpoint to end points. Streamer brought in to commence explosive work, 1300/16. Commenced ESP C4, air gun half, 2100/16.

April 17: Completed ESP C4. Explosive detonation problems returned; only 92% success. Also completed ESP C3; 94% detonation.

April 18: Completed ESP C2; 100% detonation. ESP C1 shot with air guns after streamer redeployed. Shark bite repaired.

April 19 - 21: After completion of ESP C1 at 0100 we continued along the ESP track line switching to 20 sec rep. rate, 12 sec record, normal CDP work, initially using four guns; 1, 2, 8, 10. RIG SEISMIC retrieved its towed equipment, then followed us to the end point of ESP C1 where we rendezvoused to transfer Raydist, Mini-Ranger and VHF radio equipment. We then continued on to reshoot ESPs C2 to C5, and also shot the intervening line segments. Sonobuoys were routinely deployed along all lines. By the commencement of the ESP C2 reshoot we had deployed a nine-gun array of 2856 cu. inch, by making use of all available chambers. This phase of the work was completed by

1400/21. Streamer retrieved and transit begun 1700/21.

April 22: Arrived Port Hedland 0807/23; no data recorded on transit.

Explosive Operations

The only aspect of operations on RC-2702 that can be regarded as less than satisfactory was the performance of the explosives supplied to us from ICI by BMR. Considerable misinformation attended virtually all aspects, all of which came from the supplier; ICI, Port Hedland.

1) We had originally been advised that the charges could be loaded at Port Hedland, which were later diverted to Broome when it was found that Port Hedland could not handle the tonnage we needed to load. This required that the survey work begin with a two day, rather than 12 hour transit to the work area for both vessels involved, plus an extra two-day transit for RIG SEISMIC to reach Port Hedland from its previous area of operation. Due to both vessels' commitments following RC-2702, these transit days were simply lost to the science operations.

2) We were incorrectly advised of the density of the explosive gel when packaged as received. The ballasting material supplied, household bricks to be strapped to the boxes of charges, was insufficient to satisfactorily sink the charges by a factor of about three. This required us to arrange for new ballast to be brought to the vessel at sea using a much larger boat than we had originally intended to use to disembark John Diebold. More disturbing was the fact that several undetonated, poorly ballasted charges were deployed, the fate of which is not known.

3) The fuse supplied was <u>not</u> waterproof and this led to numerous deployments of charges which did not detonate. The only solution involved the absurd procedure of <u>painting</u> the fuses.

Two major effects to the science operation results:

I. Three ESP's were sited on the continental shelf, and since we expected to encounter the thickest total crustal column there, we planned to shoot them

with explosives. All three were aborted and shot with only airguns because it was not possible to guarantee 100% detonation. Those charges that did not detonate would remain live since our advise from ICI was that they would not become inert unless they sank past 1000' - a figure originally quoted as 500'. The shelf being much less than this depth, any undetonated charge would simply lie on the bottom until the cardboard container broke apart and the individual canisters would float to the surface. This was of particular concern since one of our planned ESPs was located near to Rankin No. 1 production platform and pipe line.

II. Those ESPs shot with explosives had an average detonation rate of 92%, but varied between 64% and 100%.

It seems very likely that these two effects will have considerable impact on the quality and value of the project.

Airgun Array

The ten-gun source array installed in Singapore, and for which RC-2702 was the first working leg, was a complete success. Although some problems were encountered with individual guns as normally occurs, and similarly compressors, diesel and DC-drives experienced various breakdowns, there was no instance in which loss of working time could be attributed to poor performance of any of the new components of the seismic source. Because of the need to bring the gun array in several times during the leg to perform explosive runs, rendezvous with RIG SEISMIC, and on two occasions because of CONRAD's equipment failures, considerable experience was gained in deployment and retrieval of the array. Either operation presently requires not more than 60 mins. (from streaming to completely on-board and secured or vice versa) and can be achieved in 45 mins. in fair weather. These deployment/retrieval times are not very different from those required in the past to deploy the standard four-gun array, and could be improved upon if separate power packs were used to drive port and starboard gun winches and booms - At present the two arrays cannot be handled simultaneously.

The gun array was used in three different modes -

1) as a large-volume source for ESP's and WACDP

2) as a source for CDP shooting mid-leg in which part of the ESP configured array was used,

3) as a CDP source in which chambers where swapped out to maximize the number of available guns.

Distribution of chamber sizes for the three modes is as follows:

ESP Source

Gun #	1	2	3	4	5	6	7	8	9	10
Volume	420	500	585	700	825	760	640	540	466	385

CDP Source (mid-leg)

Gun #	1	2							9	10
Volume	420	500							466	385

CDP Source

Gun #	1	2	3	4	5	6	7	8	9	10
Volume	420	500		235	120	260	350	120	466	385

Total volumes are 5821, 1771, 2856 cu. inch.

The larger volume was fired at 60 sec repetition rate, the smaller at 20 sec. Operation of the large volume array at 60 sec required the use of three compressors.

The gun fire control unit also worked particularly well with minimum loss of time due to system crashes, etc. The daily performance summary sheets are particularly useful and should become part of standard documentation.

The only major difficulty experienced in operating the new source array is weather related - in a strong beam sea, as occurred on March 24 - 25, the two inboard guns that tow from separate frames attached to the vessel were retrieved because of the high risk of entanglement in the streamer. This, in fact, occurred with gun #5 on April 4, requiring us to run ESP E8 without the largest volume gun (825 cu. inch), reducing the total array volume to 4966 cu. inch. Since this is likely to be a recurring problem, I suggest that some thought be given to redesigning the gun distribution within the array such

that if the need arises to retrieve an inboard gun, array volume is reduced by much less than presently occurs.

Retrieval of a single gun from the gun booms is relatively simple and requires only about 20 mins since the other guns on the boom need not be brought completely on board. If the design and implementation of a system to retrieve a single gun from the array without bringing in a boom is either expensive or complicated, I suggest it not be given high priority, although it would certainly be a desirable improvement in the long term.

Summary

The experiment overall was a considerable success, marred only by the failure of the explosives to perform satisfactorily. This led to the only major compromise in the original science plan, the consequences of which will only become known when the data are reduced in the lab.

The final figures for data collection are:

19 ESP's of which 9 (E3 to E7, CR3, C2 to C4) have both airgun and explosive recordings. Two (C5, C1) were obtained through only half of the usual recording run due to time shortage. One (E9, 9A) is split at its midpoint because unmapped seafloor topography required us to relocate the experiment after reaching midpoint.

1300 km WACDP data.

1000 km conventional CDP data, 48-fold, mostly as reshoots of ESP's with some data obtained on lines connecting ESPs.

Magnetometer data were obtained along all seismic track other than the ESPs on which explosives were deployed.

No gravimeter was available for the work.

Recommendations

1) Although the new air gun array performed extremely well, the routine operation of the system requires a larger number of personnel than was needed for the four-gun array which it replaced. During RC-2702 Martin Iltzsche and John DiBernardo were assisted by Jim Smith, John Diebold, and Carlos Gutierrez in all aspects of airgun maintenance and operation. Ropate assisted only in manhandling guns and in compressor maintenance, and does not have the knowledge to contribute to maintenance tasks such as the rebuilding of an air gun. With ten guns in continuous operation, maintenance, too, becomes virtually continuous, and it is clear that Martin requires two assistants who have the skills to carry out all aspects of airgun and compressor operation and maintenance.

2) At the end of the leg the MCS streamer was in fairly poor condition. Three channels were dead and others showed leakage. Physical condition of many streamer sections is rather poor. The nature of the fault that causes the dead sections is uncertain, but it seems clear that it is not in the sections themselves, thus it must be traced throughout the streamer and recording system. A period of approximately five days should be set aside before the next MCS leg to thoroughly check out the entire streamer and recording system.

3) Once again, I recommend that we purchase a set of Syntron, individually addressable, depth control birds for the streamer. During RC-2702 we were often required to accept very poor trim on the streamer because correcting the trim would have required us to terminate operations, retrieve and reballast the streamer, and redeploy, at a cost of perhaps twelve hours and an uncertain result. We continued, through necessity, to collect a great deal of data that is poor in this regard, and spent considerable amounts of time in trimming the

streamer, both of which could have been avoided if controllable birds were available.

4) (Related to 3) I recommend once again, that some readout of streamer depth be available on the bridge. Streamer trim is highly sensitive to ship's speed and sea conditions, but the response to changes of speed, etc., is not directly available to the bridge and must be communicated to them. Either a television monitor using the available system or a direct instrument readout should be placed on the bridge. There is no doubt that this would lead to much improved streamer trim.

4) I echo the recommendations of other MCS Chief Scientists in asking that steps be taken soon to implement some basic shipboard data processing system. Current displays and quality control are very poor indeed. In particular, when CONRAD is used as a receiving ship for ESP operations, the only display of recorded data available for inspection is the Galvo camera's wiggle traces. This, in fact, malfunctioned on RC-2702. At minimum we require a shipboard demux and gather capability with simple brute stack.

5) While the new Avon rescue boat itself is adequate, its diesel power plant is totally inadequate. Loaded and in slight seas, it is bearly capable of three knots, at which speed it cannot keep up with CONRAD when it is steaming at minimum speed for the towed equipment. This makes personnel and equipment transfers, which are an essential part of two-ship MCS operations, both time consuming and unsafe. The alternate; bringing both ships' streamers aboard and heaving to, is not acceptable.

6) While not a new problem, the lack of space for science personnel to layout maps, etc., is certainly aggrevating. There is virturally no suitable space available on the ship, and what space there is soon disappears beneath stored equipment boxes, etc. While I appreciate the limitations of space on

the vessel, little consideration ever seems to be given to this problem when the space is modified. Some areas seem to be underutilized or poorly utilized - the Biolab and Gravity lab, for instance. Some reasonable and permanent science "office" space should be developed on the vessel.

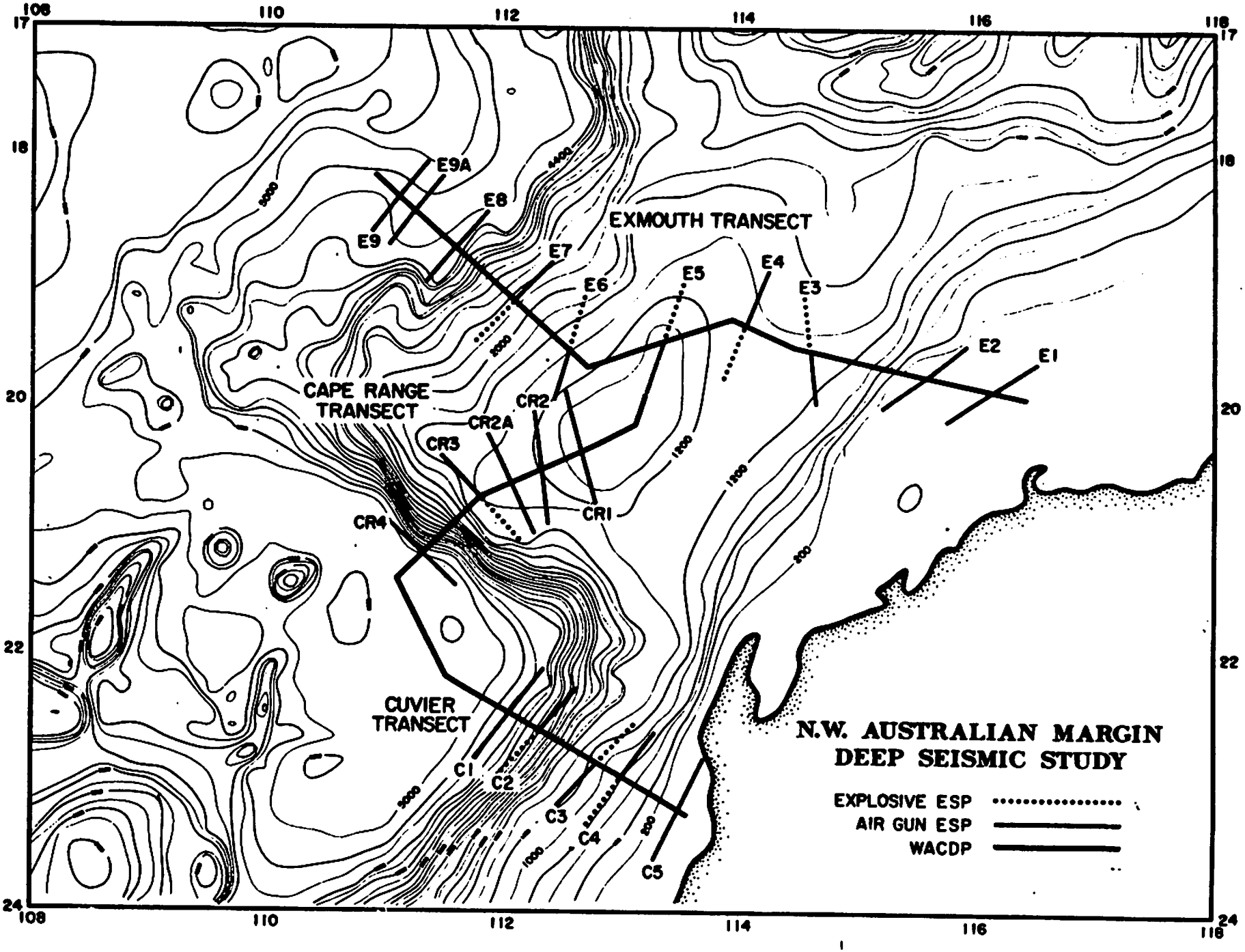
108
110
112
114
116
118
17
18
20
22
24
E9A
E8
E9
E7
E6
E5
E4
E3
E2
E1
EXMOUTH TRANSECT
CAPE RANGE TRANSECT
CR2
CR2A
CR3
CR1
CR4
CUVIER TRANSECT
C1
C2
C3
C4
C5
3000
4000
2000
1000
200
N.W. AUSTRALIAN MARGIN
DEEP SEISMIC STUDY
EXPLOSIVE ESP
AIR GUN ESP
WACDP

FIGURE 1

TABLE 1

START DAY	START TIME	GMT END DAY	GMT END TIME	LINE		MODE	SOURCE
				EXMOUTH TRANSECT			
25 MAR 86	2000	26 MAR 86	0218	CONRAD NOT	NWA-1	ESP 5	AIRGUNS
26 MAR 86	0239	26 MAR 86	2651	RECORDING	NWA-1	ESP 5	EXPLOSIVES
26 MAR 86	1918	27 MAR 86	0103	CONRAD NOT	NWA-2	ESP 4	AIRGUNS
27 MAR 86	020754	27 MAR 86	0600	RECORDING	NWA-2	ESP 4	EXPLOSIVES
27 MAR 86	1214	27 MAR 86	1728	CONRAD NOT	NWA-3	ESP 3	AIRGUNS
27 MAR 86	1825	27 MAR 86	2236	RECORDING	NWA-3	ESP 3	EXPLOSIVES
29 MAR 86	0606	29 MAR 86	1610	646	NWA-4	ESP 2 CDP	AIRGUNS
30 MAR 86	0107	30 MAR 86	1210	647	NWA-5	ESP 1 CDP	AIRGUNS
31 MAR 86	023930	30 APR 86	0123	648	NWA-6	WACDP	AIRGUNS
0[illegible]PR 86	1048	03 APR 86	1521	649	NWA-7	ESP 9A CDP	AIRGUNS
03 APR 86	1852	03 APR 86	2300	650	NWA-8	ESP 9 CDP	AIRGUNS
04 APR 86	0640	04 APR 86	1500	651	NWA-9	ESP 8 CDP	AIRGUNS
04 APR 86	2330	05 APR 86	0500	CONRAD NOT	NWA-10	ESP 7	AIRGUNS
05 APR 86	0543	05 APR 86	0951	RECORDING	NWA-10	ESP 7	EXPLOSIVES
05 APR 86	1708	05 APR 86	2223	CONRAD NOT	NWA-11	ESP 6	AIRGUNS
05 APR 86	2313	06 APR 86	0327	RECORDING	NWA-11	ESP 6	EXPLOSIVES
				CAPE RANGE TRANSECT			
06 APR 86	1803	06 APR 86	2339	CONRAD NOT	NWA-12	ESP CR3	AIRGUNS
06 APR 86	0035	07 APR 86	0459	RECORDING	NWA-12	ESP CR3	EXPLOSIVES
07 APR 86	1054	07 APR 86	2131	652	NWA-13	ESP CR2A CDP	AIRGUNS
08 APR 86	0222	08 APR 86	1340	653	NWA-14	ESP CR2 CDP	AIRGUNS
08 APR 86	2003	09 APR 86	0430	654	NWA-15	ESP CR1 CDP	AIRGUNS
09[illegible]R 86	1141	09 APR 86	2149	655	NWA-16	CDP	AIRGUNS
09 APR 86	214920	10 APR 86	0819	656	NWA-17	CDP RESHOOT OF ESP 7	AIRGUNS

START DAY	START TIME	GMT END DAY	GMT END TIME	LINE		MODE	SOURCE
10 APR 86	0927	10 APR 86	1218	657	NWA-18	CDP	AIRGUNS
10 APR 86	1219	10 APR 86	2320	658	NWA-19	CDP RESHOOT OF ESP 6	AIRGUNS
11 APR 86	035830	11 APR 86	094230	659	NWA-20	CDP	AIRGUNS
11 APR 86	1012	12 APR 86	0906	660	NWA-21	WACDP	AIRGUNS
12 APR 86	1531	12 APR 86	1636	661	NWA-22	ESP CR4 CDP ABORTED	AIRGUNS
13 APR 86	2007	14 APR 86	0431	662	NWA-23	ESP CR4 CDP	AIRGUNS
				CUVIER TRANSECT			
14 APR 86	1052	15 APR 86	2150	663	NWA-24	WACDP	AIRGUNS
15 APR 86	2347	16 APR 86	0503	664	NWA-25	ESP C5 CDP	AIRGUNS
16 APR 86	1305	16 APR 86	1903	CONRAD NOT	NWA-26	ESP C4	AIRGUNS
16 APR 86	192925	16 APR 86	233025	RECORDING	NWA-26	ESP C4	EXPLOSIVES
17 APR 86	0241	17 APR 86	0803	CONRAD NOT	NWA-27	ESP C3	AIRGUNS
17 APR 86	0858	17 APR 86	1253	RECORDING	NWA-27	ESP C3	EXPLOSIVES
17 APR 86	2022	18 APR 86	0135	CONRAD NOT	NWA-28	ESP C2	AIRGUNS
18 APR 86	0235	18 APR 86	0700	RECORDING	NWA-28	ESP C2	EXPLOSIVES
18 APR 86	1150	18 APR 86	2240	665	NWA-29	ESP C1 CDP	AIRGUNS
19 APR 86	0017	19 APR 86	1325	666	NWA-30	CDP RESHOOT OF ESP C2	AIRGUNS
19 APR 86	1325	19 APR 86	1904	667	NWA-31	CDP RESHOOT OF ESP C3	AIRGUNS
19 APR 86	1915	20 APR 86	0601	668	NWA-32	CDP RESHOOT OF ESP C3	AIRGUNS
20 APR 86	0602	20 APR 86	0740	669	NWA-33	CDP	AIRGUNS
20 APR 86	0741	20 APR 86	1753	670	NWA-34	CDP RESHOOT OF ESP C4	AIRGUNS
21 APR 86	1753	21 APR 86	0057	671	NWA-35	CDP	AIRGUNS
21 APR 86	0057	21 APR 86	0603	672	NWA-36	CDP RESHOOT OF ESP C5	AIRGUNS

TABLE II - SONOBUOYS

SONO #	START DAY	START TIME	GMT END DAY	GMT END TIME	RECORDED ON	LOCATION (LINE #)	DUD	GOOD	COMMENTS
1	31 MAR 86	0633	31 MAR 86	1143	DFS IV AUX I	648		X	EXMOUTH WACDP
2	01 APR 86	0429	01 APR 86	0830	DFS IV AUX I	648		X	NWA-6
3A	01 APR 86	0855:30	01 APR 86	0935	DFS IV AUX I	648	X		CAUGHT STREAME
3	01 APR 86	0942	01 APR 86	1400	DFS IV AUX I	648		X	
4	01 APR 86	1557	01 APR 86	--	DFS IV AUX I	648	X		UNKNOWN END TIM
5	02 APR 86	0215	02 APR 86	0818	DFS IV AUX I	648		X	
6	02 APR 86	0825	02 APR 86	1325	DFS IV AUX I	648		X	
7	02 APR 86	1330	02 APR 86	1457	DFS IV AUX I	648		X	
8	11 APR 86	1408	11 APR 86	1823	DFS IV AUX I	660		X	CAPE RA WACDP
9	11 APR 86	1831	11 APR 86	2230	DFS IV AUX I	660		X	NWA-21
10A	12 APR 86	0509	12 APR 86	0621	DFS IV AUX I	660	X		
10	12 APR 86	0651	12 APR 86	0906	DFS IV AUX I	660		X	
11	12 APR 86	1549	12 APR 86	1636	DFS IV AUX I	661		X	ABORTED TO SHIP MALFUNC NWA-22
	13 APR 86	2018	14 APR 86	0226	DFS IV AUX I	662		X	NWA-23
13A	17 APR 86	0249	17 APR 86	--	DATA LOGGER	NWA-27	X		DFS IV RECORDI
13	17 APR 86	0259	17 APR 86	0504	DATA LOGGER	NWA-27		X	START O ESP C3
14	17 APR 86	0545	17 APR 86	0830	DATA LOGGER	NWA-27		X	ON ESP
15	17 APR 86	2017	18 APR 86	0002	DATA LOGGER	NWA-28		X	START O ESP C2
16	18 APR 86	1218:17	18 APR 86	1648	DFS IV AUX I	665			NWA-29 ESP C1
17A	18 APR 86	--	--	--	--	--	X		
17	18 APR 86	1738:40	18 APR 86	2230	DFS IV AUX I	665		X	EOL, ES
18	19 APR 86	0035:50	19 APR 86	0228	DFS IV AUX I	666		X	NWA-30, ESP C2 RESHOOT
19A	19 APR 86	0312	19 APR 86	--	--	--	X		
19B	19 APR 86	--	--	--	--	--	X		
19	19 APR 86	0349	19 APR 86	0650	DFS IV AUX I	666		X	NWA-30
20	19 APR 86	0652	19 APR 86	1109	DFS IV AUX I	666		X	
21	19 APR 86	1108	19 APR 86	1325	DFS IV AUX I	666		X	EOL, ES RESHOOT
22A	19 APR 86	1433	19 APR 86	1444	DFS IV AUX I	667	X		NWA-31
22	19 APR 86	1449	19 APR 86	1909	DFS IV AUX I	667		X	ESP C3 RESHOOT
23	19 APR 86	1925	19 APR 86	2306	DFS IV AUX I	668		X	NWA-32 ESP C3 RESHOOT

TABLE II - SONOBUOYS

SONO #	START DAY	GMT START TIME	END DAY	GMT END TIME	RECORDED ON	LOCATION (LINE #)	DUD	GOOD	COMMENTS
24	19 APR 86	2312	20 APR 86	0254	DFS IV AUX I	668		X	
25	20 APR 86	0301:20	20 APR 86	0608	DFS IV AUX I	668		X	EOL, ESP RESHOOT
26	20 APR 86	0752	20 APR 86	1145	DFS IV AUX I	670		X	NWA-34 ESP C4 RESHOOT
27	20 APR 86	1151	20 APR 86	1445	DFS IV AUX I	670		X	
28	20 APR 86	1454	20 APR 86	1812	DFS IV AUX I	670		X	
29	21 APR 86	0133:20	21 APR 86	0543	DFS IV AUX I	672		X	NWA-36 ESP C5 RESHOOT

TABLE III

27-28 MARCH GMT ESP E3

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	18:23.30	18:23.34	18:25.07	1.37	3 BRICKS	25 Kg	71"
2	18:30.30	18:30.34	18:30.06	1.36	3 BRICKS	25 Kg	71"
3	18:37.30	18:37.33	MISFIRE	--	3 BRICKS	25 Kg	71"
4	18:43.30	18:43.33	18:45.04	1.34	3 BRICKS	25 Kg	71"
5	18:50.30	18:50.33	18:52.04	1.34	3 BRICKS	25 Kg	71"
6	18:57.30	18:57.33	18:59.05	1.35	3 BRICKS	25 Kg	70"
7	19:04.30	19:04.33	19:06.05	1.35	3 BRICKS	25 Kg	71"
8	19:12.30	19:12.33	19:14.06	1.36	3 BRICKS	25 Kg	71"
9	19:19.38	19:19.40	19:21.12	1.34	3 BRICKS	25 Kg	71"
10	19:26.30	19:26.33	19:28.04	1.34	3 BRICKS	25 Kg	71"
11	19:33.30	19:33.33	19:35.05	1.35	3 BRICKS	25 Kg	71"
12	19:40.30	19:40.33	19:42.05	1.35	3 BRICKS	25 Kg	71"
13	19:47.30	19:47.33	19:49.05	1.35	3 BRICKS	25 Kg	71"
14	19:54.30	19:54.33	19:56.06	1.36	3 BRICKS	25 Kg	71"
15	20:01.30	20:01.32	20:03.04	1.34	3 BRICKS	25 Kg	71"
16	20:08.30	20:08.32	MISFIRE		3 BRICKS	25 Kg	71"
17	20:14.30	20:14.33	20:16.05	1.35	3 BRICKS	25 Kg	71"
18	20:21.30	20:21.33	20:23.04	1.34	3 BRICKS	25 Kg	71"
9	20:28.30	20:28.33	20:30.06	1.36	3 BRICKS	25 Kg	71"
20	20:35.30	20:35.32	20:37.02	1.32	3 BRICKS	25 Kg	71"
21	20:42.30	20:42.32	20:44.05	1.35	3 BRICKS	25 Kg	71"
22	20:49.30	20:49.33	20:51.07	1.37	3 BRICKS	25 Kg	71"
23	20:56.30	20:56.33	20:58.05	1.35	3 BRICKS	25 Kg	71"
24	21:03.30	21:03.33	21:05.09	1.39	3 BRICKS	25 Kg	71"
25	21:10.30	21:10.33	21:12.04	1.34	3 BRICKS	25 Kg	71"
26	21:17.30	21:17.33	21:19.11	1.41	3 BRICKS	25 Kg	71"
27	21:24.30	21:24.33	MISFIRE		3 BRICKS	25 Kg	71"
28	21:30.30	21:30.32	MISFIRE		3 BRICKS	25 Kg	71"
29	21:34.30	21:34.33	21:36.05	1.35	3 BRICKS	25 Kg	71"
30	21:41.30	21:41.32	21:43.06	1.36	3 BRICKS	25 Kg	71"
31	21:48.30	21:48.32	21:50.09	1.39	3 BRICKS	25 Kg	71"
32	21:55.30	21:55.32	21:57.05	1.35	3 BRICKS	25 Kg	71"
33	22:02.30	22:02.33	22:04.04	1.34	3 BRICKS	25 Kg	71"
34	22:09.30	22:09.32	22:11.05	1.35	3 BRICKS	25 Kg	71"
35	22:16.30	22:16.32	22:18.07	1.37	3 BRICKS	25 Kg	71"
36	22:23.30	22:23.33	MISFIRE		3 BRICKS	25 Kg	71"
37	22:27.30	22:27.32	22:29.06	1.36	3 BRICKS	25 Kg	71"
38	22:34.30	22:34.33	22:36.04	1.34	3 BRICKS	25 Kg	71"

28 MARCH GMT ESP E4

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	2:06.20	2:06.22	2:07.55	1.35	3 BRICKS	25 Kg	71"
2	2:13.25	2:13.28	2:15.06	1.41	3 BRICKS	25 Kg	71"
3	2:20.25	2:20.28	2:21.59	1.39	3 BRICKS	25 Kg	71"
4	2:27.30	2:27.33	MISFIRE		3 BRICKS	25 Kg	71"
5	2:32.30	2:32.33	MISFIRE		3 BRICKS	25 Kg	71"
6	2:38.30	2:38.33	2:40.03	1.33	3 BRICKS	25 Kg	71"
7	2:45.30	2:45.33	2:47.01	1.31	3 BRICKS	25 Kg	71"
8	2:52.30	2:52.33	MISFIRE		3 BRICKS	25 Kg	71"
9	2:56.30	2:56.32	2:58.01	1.31	3 BRICKS	25 Kg	71"
10	3:03.30	3:03.32	3:05.08	1.38	3 BRICKS	25 Kg	71"
11	3:10.30	3:10.33	3:10.05	1.35	3 BRICKS	25 Kg	71"
12	3:17.30	3:17.33	MISFIRE		3 BRICKS	25 Kg	71"
13	3:22.30	3:22.32	3:24.04	1.34	3 BRICKS	25 Kg	71"
14	3:29.30	3:29.33	MISFIRE		3 BRICKS	25 Kg	71"
15	3:34.30	3:34.33	3:36.10	1.40	3 BRICKS	25 Kg	71"
16	3:41.30	3:41.32	MISFIRE		3 BRICKS	25 Kg	71"
17	3:45.30	3:45.33	3:47.06	1.36	3 BRICKS	25 Kg	71"
18	3:52.30	3:52.33	MISFIRE		3 BRICKS	25 Kg	71"
19	3:56.30	3:56.33	MISFIRE		3 BRICKS	25 Kg	71"
20	4:01.30	4:01.33	4:01.07	1.33	3 BRICKS	25 Kg	71"
21	4:08.30	4:08.33	MISFIRE		3 BRICKS	25 Kg	71"
22	4:14.30	4:14.33	MISFIRE		3 BRICKS	25 Kg	71"
23	4:18.30	4:18.33	4:19.59	1.29	3 BRICKS	25 Kg	71"
24	4:25.30	4:25.33	MISFIRE		3 BRICKS	25 Kg	71"
25	4:29.30	4: .33	4:31.01	1.31	3 BRICKS	25 Kg	71"
26	4:36.30	4:36.32	4:38.05	1.35	3 BRICKS	25 Kg	71"
27	4:43.30	4:43.33	4:44.59	1.29	3 BRICKS	25 Kg	70"
28	4:50.35	4:50.34	MISFIRE		3 BRICKS	25 Kg	70"
29	4:59.35	4:59.38	4:56.12	1.37	3 BRICKS	25 Kg	70"
30	5:01.35	5:01.37	5:03.07	1.32	3 BRICKS	25 Kg	70"
31	5:08.35	5:08.38	5:10.07	1.32	3 BRICKS	25 Kg	70"
32	5:15.35	5:15.38	MISFIRE		3 BRICKS	25 Kg	70"
33	5:19.35	5:19.38	5:21.03	1.28	3 BRICKS	25 Kg	70"
34	5:26.35	5:26.37	5:28.07	1.32	3 BRICKS	25 Kg	70"
35	5:33.35	5:33.38	5:35.10	1.35	3 BRICKS	25 Kg	70"
36	5:40.35	5:40.38	5:42.10	1.35	3 BRICKS	25 Kg	70"
37	5:47.35	5:47.38	5:49.04	1.29	3 BRICKS	25 Kg	70"
38	5:54.35	5:54.38	MISFIRE		3 BRICKS	25 Kg	70"
39	5:58.35	5:58.38	6:00.08	1.33	3 BRICKS	25 Kg	70"

26 MARCH GMT ESP E5

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	2:37.22	2:37.25	2:39.15	1.53	3 BRICKS	20 Kg	6'
2	2:42.22	2:42.25	2:44.04	1.42	3 BRICKS	20 Kg	6'
3	2:49.22	2:49.25	2:51.04	1.42	3 BRICKS	20 Kg	6'
4	2:56.22	2:56.25	2:58.01	1.39	3 BRICKS	20 Kg	6'
5	3:03.22	3:03.25	3:05.04	1.42	3 BRICKS	20 Kg	6'
6	3:10.22	3:10.25	3:12.02	1.40	3 BRICKS	20 Kg	6'
7	3:17.22	3:17.25	3:29.05	1.43	3 BRICKS	20 Kg	6'
8	3:24.22	3:24.25	3:25.59	1.37	3 BRICKS	20 Kg	6'
9	3:31.22	3:31.24	3:33.01	1.39	3 BRICKS	20 Kg	6'
10	3:38.22	3:38.25	3:40.05	1.43	3 BRICKS	20 Kg	6'
11	3:45.22	3:45.25	3:47.06	1.44	3 BRICKS	20 Kg	6'
12	3:52.22	3:52.26	3:54.08	1.46	3 BRICKS	20 Kg	6'
13	3:59.22	3:59.25	4:01.01	1.39	3 BRICKS	20 Kg	6'
14	4:06.22	4:06.25	4:08.01	1.39	3 BRICKS	20 Kg	6'
15	4:13.22	4:13.25	4:15.00	1.38	3 BRICKS	20 Kg	6'
16	4:20.22	4:20.24	4:22.04	1.42	3 BRICKS	20 Kg	6'
17	4:27.22	4:27.24	4:29.06	1.44	3 BRICKS	20 Kg	6'
18	4:34.22	4:34.24	4:36.06	1.44	3 BRICKS	20 Kg	6'
19	4:41.22	4:41.24	4:43.05	1.43	3 BRICKS	20 Kg	6'
20	4:48.22	4:48.24	4:50.00	1.38	3 BRICKS	20 Kg	6'
21	4:55.22	4:55.25	4:57.05	1.43	3 BRICKS	20 Kg	6'
22	5:02.22	5:02.24	5:04.05	1.43	3 BRICKS	20 Kg	6'
23	5:07.22	5:07.24	5:09.07	1.45	3 BRICKS	20 Kg	6'
24	5:14.22	5:14.25	5:16.06	1.44	3 BRICKS	20 Kg	6'
25	5:21.22	5:21.24	5:23.09	1.47	3 BRICKS	20 Kg	6'
26	5:28.22	5:28.24	5:30.03	1.41	3 BRICKS	20 Kg	6'
27	5:35.22	5:35.25	5:37.04	1.42	3 BRICKS	20 Kg	6'
28	5:42.22	5:42.24	5:44.03	1.41	3 BRICKS	20 Kg	6'
29	5:49.22	5:49.26	5:51.08	1.46	3 BRICKS	20 Kg	6'
30	5:56.22	5:56.24	5:58.03	1.41	3 BRICKS	20 Kg	6'
31	6:03.22	6:03.25	6:05.01	1.39	3 BRICKS	20 Kg	6'
32	6:10.22	6:10.25	6:12.06	1.44	3 BRICKS	20 Kg	6'
33	6:17.22	6:17.24	6:19.06	1.44	3 BRICKS	20 Kg	6'
34	6:24.22*	6:24.24	6:26.01	1.39	3 BRICKS	20 Kg	6'
35	6:31.22	6:31.24	MISFIRE		3 BRICKS	20 Kg	6'
36	6:36.22	6:36.24	MISFIRE		3 BRICKS	20 Kg	6'
37	6:42.22	6:42.25	6:44.14	1.57	4 BRICKS	29.5 Kg	6'
38	6:49.22	6:49.26	6:51.15	1.53	4 BRICKS	29.5 Kg	6'

* Fuse lit 2 seconds early

5-6 APRIL GMT ESP E6

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	23:11.25	23:11.28	23:13.07	1.42	2 BRICKS	25 Kg	71"
2	23:18.25	23:18.27	23:20.08	1.43	2 BRICKS	25 Kg	71"
3	23:25.25	23:25.28	23:27.06	1.41	2 BRICKS	25 Kg	71"
4	23:32.25	23:32.28	23:34.07	1.42	2 BRICKS	25 Kg	71"
5	23:39.25	23:39.27	23:41.07	1.42	2 BRICKS	25 Kg	71"
6	23:46.25	23:46.27	23:48.11	1.46	2 BRICKS	25 Kg	71"
7	23:53.25	23:53.29	23:55.11	1.46	2 BRICKS	25 Kg	71"
8	00:00.25	00:00.28	00:02.05	1.40	2 BRICKS	25 Kg	71"
9	00:08.25	00:08.28	00:10.08	1.43	2 BRICKS	25 Kg	71"
10	00:15.25	00:15.28	00:17.08	1.43	2 BRICKS	25 Kg	71"
11	00:23.25	00:23.28	00:25.08	1.43	2 BRICKS	25 Kg	71"
12	00:30.25	00:30.28	00:32.08	1.43	2 BRICKS	25 Kg	71"
13	00:37.25	00:37.28	00:39.09	1.44	2 BRICKS	25 Kg	71"
14	00:44.25	00:44.28	00:46.08	1.43	2 BRICKS	25 Kg	71"
15	00:51.25	00:51.28	00:53.07	1.42	2 BRICKS	25 Kg	71"
16	00:58.25	00:58.27	01:00.08	1.43	2 BRICKS	25 Kg	71"
17	01:05.25	01:05.28	01:07.04	1.39	2 BRICKS	25 Kg	71"
18	01:12.25	01:12.27	01:14.11	1.46	2 BRICKS	25 Kg	71"
19	01:19.25	01:19.28	01:21.12	1.47	2 BRICKS	25 Kg	71"
20	01:26.25	01:26.28	01:28.01	1.36	2 BRICKS	25 Kg	71"
21	01:33.25	01:33.28	01:35.10	1.45	2 BRICKS	25 Kg	71"
22	01:40.25	01:40.28	01:42.07	1.42	2 BRICKS	25 Kg	71"
23	01:47.25	01:47.28	01:49.04	1.39	2 BRICKS	25 Kg	71"
24	01:54.25	01:54.28	01:56.12	1.47	2 BRICKS	25 Kg	71"
25	02:01.25	02:01.28	02:03.09	1.44	2 BRICKS	25 Kg	71"
26	02:08.25	02:08.28	02:10.03	1.38	2 BRICKS	25 Kg	71"
27	02:15.25	02:15.28	02:17.07	1.42	2 BRICKS	25 Kg	71"
28	02:22.25	02:22.28	02:24.10	1.45	2 BRICKS	25 Kg	71"
29	02:29.25	02:29.28	02:31.07	1.42	2 BRICKS	25 Kg	71"
30	02:36.25	02:36.28	02:38.06	1.41	2 BRICKS	25 Kg	71"
31	02:43.25	02:43.28	02:45.10	1.45	2 BRICKS	25 Kg	71"
32	02:50.25	02:50.28	02:52.04	1.39	2 BRICKS	25 Kg	71"
33	02:57.25	02:57.28	02:59.09	1.44	2 BRICKS	25 Kg	71"
34	03:04.25	03:04.28	03:06.06	1.41	2 BRICKS	25 Kg	71"
35	03:11.25	03:11.28	03:13.09	1.44	2 BRICKS	25 Kg	71"
36	03:18.25	03:18.28	03:20.09	1.44	2 BRICKS	25 Kg	71"
37	03:25.25	03:25.28	03:27.09	1.44	2 BRICKS	25 Kg	71"

5 APRIL GMT ESP E7

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	5:41.30	5:41.33	5:43.15	1.45	2 BRICKS	25 Kg	71"
2	5:48.25	5:48.28	MISFIRE		2 BRICKS	25 Kg	71"
3	5:53.25	5:53.28	5:55.07	1.42	2 BRICKS	25 Kg	71"
4	6:00.25	6:00.28	6:02.07	1.42	2 BRICKS	25 Kg	71"
5	6:07.25	6:07.28	6:09.09	1.44	2 BRICKS	25 Kg	71"
6	6:14.25	6:14.28	MISFIRE		2 BRICKS	25 Kg	71"
7	6:18.25	6:18.30	6:20.07	1.42	2 BRICKS	25 Kg	71"
8	6:25.25	6:25.29	6:27.03	1.38	2 BRICKS	25 Kg	71"
9	6:32.25	6:32.28	6:34.07	1.42	2 BRICKS	25 Kg	71"
10	6:39.25	6:39.28	6:41.07	1.42	2 BRICKS	25 Kg	71"
11	6:46.25	6:46.28	6:48.09	1.44	2 BRICKS	25 Kg	71"
12	6:53.25	6:53.28	6:55.07	1.42	2 BRICKS	25 Kg	71"
13	7:00.25	7:00.28	7:02.06	1.41	2 BRICKS	25 Kg	71"
14	7:07.25	7:07.28	7:09.11	1.46	2 BRICKS	25 Kg	71"
15	7:14.25	7:14.28	7:16.07	1.42	2 BRICKS	25 Kg	71"
16	7:21.25	7:21.28	7:23.06	1.41	2 BRICKS	25 Kg	71"
17	7:28.25	7:28.28	7:30.10	1.45	2 BRICKS	25 Kg	71"
18	7:35.25	7:35.28	7:37.10	1.45	2 BRICKS	25 Kg	71"
19	7:42.25	7:43.28	7:45.03	1.38	2 BRICKS	25 Kg	71"
20	7:50.25	7:50.28	7:52.07	1.42	2 BRICKS	25 Kg	71"
21	7:57.25	7:57.28	7:59.09	1.44	2 BRICKS	25 Kg	71"
22	8:04.25	8:04.28	8:06.13	1.48	2 BRICKS	25 Kg	71"
23	8:11.25	8:11.28	8:13.10	1.45	2 BRICKS	25 Kg	71"
24	8:18.25	8:18.28	8:20.09	1.44	2 BRICKS	25 Kg	71"
25	8:25.25	8:25.28	8:27.08	1.44	2 BRICKS	25 Kg	71"
26	8:32.25	8:32.29	8:34.09	1.44	2 BRICKS	25 Kg	71"
27	8:39.25	8:39.29	8:41.06	1.41	2 BRICKS	25 Kg	71"
28	8:46.25	8:46.29	8:48.07	1.42	2 BRICKS	25 Kg	71"
29	8:53.25	8:53.28	8:55.10	1.45	2 BRICKS	25 Kg	71"
30	9:00.25	9:00.27	9:02.10	1.45	2 BRICKS	25 Kg	71"
31	9:07.25	9:07.28	9:09.04	1.39	2 BRICKS	25 Kg	71"
32	9:14.25	9:14.28	9:16.08	1.43	2 BRICKS	25 Kg	71"
33	9:21.25	9:21.28	9:23.07	1.42	2 BRICKS	25 Kg	71"
34	9:28.25	9:28.28	9:30.09	1.44	2 BRICKS	25 Kg	71"
35	9:37.28	9:37.31	9:39.07	1.39	2 BRICKS	25 Kg	71"
36	9:42.25	9:42.28	9:44.07	1.42	2 BRICKS	25 Kg	71"
37	9:49.25	9:49.28	9:51.04	1.39	2 BRICKS	25 Kg	71"

7 APRIL GMT ESP CR3

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	00:26.25	00:26.28	00:28.04	1.39	2 BRICKS	25 Kg	71"
2	00:33.25	00:33.28	00:35.08	1.43	2 BRICKS	25 Kg	71"
3	00:40.25	00:40.28	00:42.10	1.45	2 BRICKS	25 Kg	71"
4	00:47.25	00:47.28	00:49.05	1.40	2 BRICKS	25 Kg	71"
5	00:54.25	00:54.28	00:56.11	1.46	2 BRICKS	25 Kg	71"
6	01:01.25	01:01.28	01:03.06	1.41	2 BRICKS	25 Kg	71"
7	01:08.25	01:08.28	01:10.07	1.42	2 BRICKS	25 Kg	71"
8	01:15.25	01:15.28	01:17.09	1.44	2 BRICKS	25 Kg	71"
9	01:22.15	01:22.28	01:24.08	1.43	2 BRICKS	25 Kg	71"
10	01:29.25	01:29.28	01:31.10	1.45	2 BRICKS	25 Kg	71"
11	01:36.25	01:36.28	01:38.11	1.46	2 BRICKS	25 Kg	71"
12	01:43.25	01:43.28	01:45.09	1.44	2 BRICKS	25 Kg	71"
13	01:50.25	01:50.27	01:52.04	1.39	2 BRICKS	25 Kg	71"
14	01:57.25	01:57.28	01:59.12	1.47	2 BRICKS	25 Kg	71"
15	02:04.25	02:04.28	02:06.05	1.40	2 BRICKS	25 Kg	71"
16	02:11.25	02:11.28	02:13.12	1.47	2 BRICKS	25 Kg	71"
17	02:18.25	02:18.28	02:20.07	1.42	2 BRICKS	25 Kg	71"
18	02:25.25	02:25.28	02:27.05	1.40	2 BRICKS	25 Kg	71"
19	02:33.25	02:33.28	02:35.03	1.38	2 BRICKS	25 Kg	71"
20	02:41.25	02:41.28	02:43.05	1.40	2 BRICKS	25 Kg	71"
21	02:49.25	02:49.28	02:51.11	1.46	2 BRICKS	25 Kg	71"
22	02:57.25	02:57.28	02:59.06	1.41	2 BRICKS	25 Kg	71"
23	03:05.25	03:05.28	03:07.08	1.43	2 BRICKS	25 Kg	71"
24	03:13.25	03:13.28	03:15.09	1.44	2 BRICKS	25 Kg	71"
25	03:21.25	03:21.29	03:23.09	1.44	2 BRICKS	25 Kg	71"
26	03:29.25	03:29.28	03:31.03	1.38	2 BRICKS	25 Kg	71"
27	03:37.25	03:37.28	03:39.07	1.42	2 BRICKS	25 Kg	71"
28	03:45.25	03:45.30	03:47.13	1.48	2 BRICKS	25 Kg	71"
29	03:53.25	03:53.28	03:55.09	1.44	2 BRICKS	25 Kg	71"
30	04:01.25	04:01.28	04:03.08	1.43	2 BRICKS	25 Kg	71"
31	04:09.25	04:09.28	04:11.10	1.45	2 BRICKS	25 Kg	71"
32	04:17.25	04:17.27	04:19.08	1.43	2 BRICKS	25 Kg	71"
33	04:25.25	04:25.28	04:27.07	1.42	2 BRICKS	25 Kg	71"
34	04:33.25	04:33.28	04:35.11	1.46	2 BRICKS	25 Kg	71"
35	04:41.25	04:41.27	04:43.11	1.46	2 BRICKS	25 Kg	71"
36	04:49.25	04:49.28	04:51.10	1.45	2 BRICKS	25 Kg	71"
37	04:57.25	04:57.28	04:59.07	1.42	2 BRICKS	25 Kg	71"

5 APRIL GMT ESP E7

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	5:41.30	5:41.33	5:43.15	1.45	2 BRICKS	25 Kg	71"
2	5:48.25	5:48.28	MISFIRE		2 BRICKS	25 Kg	71"
3	5:53.25	5:53.28	5:55.07	1.42	2 BRICKS	25 Kg	71"
4	6:00.25	6:00.28	6:02.07	1.42	2 BRICKS	25 Kg	71"
5	6:07.25	6:07.28	6:09.09	1.44	2 BRICKS	25 Kg	71"
6	6:14.25	6:14.28	MISFIRE		2 BRICKS	25 Kg	71"
7	6:18.25	6:18.30	6:20.07	1.42	2 BRICKS	25 Kg	71"
8	6:25.25	6:25.29	6:27.03	1.38	2 BRICKS	25 Kg	71"
9	6:32.25	6:32.28	6:34.07	1.42	2 BRICKS	25 Kg	71"
10	6:39.25	6:39.28	6:41.07	1.42	2 BRICKS	25 Kg	71"
11	6:46.25	6:46.28	6:48.09	1.44	2 BRICKS	25 Kg	71"
12	6:53.25	6:53.28	6:55.07	1.42	2 BRICKS	25 Kg	71"
13	7:00.25	7:00.28	7:02.06	1.41	2 BRICKS	25 Kg	71"
14	7:07.25	7:07.28	7:09.11	1.46	2 BRICKS	25 Kg	71"
15	7:14.25	7:14.28	7:16.07	1.42	2 BRICKS	25 Kg	71"
16	7:21.25	7:21.28	7:23.06	1.41	2 BRICKS	25 Kg	71"
17	7:28.25	7:28.28	7:30.10	1.45	2 BRICKS	25 Kg	71"
18	7:35.25	7:35.28	7:37.10	1.45	2 BRICKS	25 Kg	71"
19	7:42.25	7:43.28	7:45.03	1.38	2 BRICKS	25 Kg	71"
20	7:50.25	7:50.28	7:52.07	1.42	2 BRICKS	25 Kg	71"
21	7:57.25	7:57.28	7:59.09	1.44	2 BRICKS	25 Kg	71"
22	8:04.25	8:04.28	8:06.13	1.48	2 BRICKS	25 Kg	71"
23	8:11.25	8:11.28	8:13.10	1.45	2 BRICKS	25 Kg	71"
24	8:18.25	8:18.28	8:20.09	1.44	2 BRICKS	25 Kg	71"
25	8:25.25	8:25.28	8:27.08	1.44	2 BRICKS	25 Kg	71"
26	8:32.25	8:32.29	8:34.09	1.44	2 BRICKS	25 Kg	71"
27	8:39.25	8:39.29	8:41.06	1.41	2 BRICKS	25 Kg	71"
28	8:46.25	8:46.29	8:48.07	1.42	2 BRICKS	25 Kg	71"
29	8:53.25	8:53.28	8:55.10	1.45	2 BRICKS	25 Kg	71"
30	9:00.25	9:00.27	9:02.10	1.45	2 BRICKS	25 Kg	71"
31	9:07.25	9:07.28	9:09.04	1.39	2 BRICKS	25 Kg	71"
32	9:14.25	9:14.28	9:16.08	1.43	2 BRICKS	25 Kg	71"
33	9:21.25	9:21.28	9:23.07	1.42	2 BRICKS	25 Kg	71"
34	9:28.25	9:28.28	9:30.09	1.44	2 BRICKS	25 Kg	71"
35	9:37.28	9:37.31	9:39.07	1.39	2 BRICKS	25 Kg	71"
36	9:42.25	9:42.28	9:44.07	1.42	2 BRICKS	25 Kg	71"
37	9:49.25	9:49.28	9:51.04	1.39	2 BRICKS	25 Kg	71"

7 APRIL GMT ESP CR3

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	00:26.25	00:26.28	00:28.04	1.39	2 BRICKS	25 Kg	71"
2	00:33.25	00:33.28	00:35.08	1.43	2 BRICKS	25 Kg	71"
3	00:40.25	00:40.28	00:42.10	1.45	2 BRICKS	25 Kg	71"
4	00:47.25	00:47.28	00:49.05	1.40	2 BRICKS	25 Kg	71"
5	00:54.25	00:54.28	00:56.11	1.46	2 BRICKS	25 Kg	71"
6	01:01.25	01:01.28	01:03.06	1.41	2 BRICKS	25 Kg	71"
7	01:08.25	01:08.28	01:10.07	1.42	2 BRICKS	25 Kg	71"
8	01:15.25	01:15.28	01:17.09	1.44	2 BRICKS	25 Kg	71"
9	01:22.15	01:22.28	01:24.08	1.43	2 BRICKS	25 Kg	71"
10	01:29.25	01:29.28	01:31.10	1.45	2 BRICKS	25 Kg	71"
11	01:36.25	01:36.28	01:38.11	1.46	2 BRICKS	25 Kg	71"
12	01:43.25	01:43.28	01:45.09	1.44	2 BRICKS	25 Kg	71"
13	01:50.25	01:50.27	01:52.04	1.39	2 BRICKS	25 Kg	71"
14	01:57.25	01:57.28	01:59.12	1.47	2 BRICKS	25 Kg	71"
15	02:04.25	02:04.28	02:06.05	1.40	2 BRICKS	25 Kg	71"
16	02:11.25	02:11.28	02:13.12	1.47	2 BRICKS	25 Kg	71"
17	02:18.25	02:18.28	02:20.07	1.42	2 BRICKS	25 Kg	71"
18	02:25.25	02:25.28	02:27.05	1.40	2 BRICKS	25 Kg	71"
19	02:33.25	02:33.28	02:35.03	1.38	2 BRICKS	25 Kg	71"
20	02:41.25	02:41.28	02:43.05	1.40	2 BRICKS	25 Kg	71"
21	02:49.25	02:49.28	02:51.11	1.46	2 BRICKS	25 Kg	71"
22	02:57.25	02:57.28	02:59.06	1.41	2 BRICKS	25 Kg	71"
23	03:05.25	03:05.28	03:07.08	1.43	2 BRICKS	25 Kg	71"
24	03:13.25	03:13.28	03:15.09	1.44	2 BRICKS	25 Kg	71"
25	03:21.25	03:21.29	03:23.09	1.44	2 BRICKS	25 Kg	71"
26	03:29.25	03:29.28	03:31.03	1.38	2 BRICKS	25 Kg	71"
27	03:37.25	03:37.28	03:39.07	1.42	2 BRICKS	25 Kg	71"
28	03:45.25	03:45.30	03:47.13	1.48	2 BRICKS	25 Kg	71"
29	03:53.25	03:53.28	03:55.09	1.44	2 BRICKS	25 Kg	71"
30	04:01.25	04:01.28	04:03.08	1.43	2 BRICKS	25 Kg	71"
31	04:09.25	04:09.28	04:11.10	1.45	2 BRICKS	25 Kg	71"
32	04:17.25	04:17.27	04:19.08	1.43	2 BRICKS	25 Kg	71"
33	04:25.25	04:25.28	04:27.07	1.42	2 BRICKS	25 Kg	71"
34	04:33.25	04:33.28	04:35.11	1.46	2 BRICKS	25 Kg	71"
35	04:41.25	04:41.27	04:43.11	1.46	2 BRICKS	25 Kg	71"
36	04:49.25	04:49.28	04:51.10	1.45	2 BRICKS	25 Kg	71"
37	04:57.25	04:57.28	04:59.07	1.42	2 BRICKS	25 Kg	71"

17 APRIL GMT ESP C3

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	08:58.25	08:58.28	09:00.08	1.43	2 BRICKS	25 Kg	71"
2	09:05.25	09:05.28	MISFIRE		2 BRICKS	25 Kg	71"
3	09:09.25	09:09.29	09:11.10	1.45	2 BRICKS	25 Kg	71"
4	09:16.25	09:16.29	09:18.11	1.46	2 BRICKS	25 Kg	71"
5	09:23.25	09:23.30	09:25.14	1.49	2 BRICKS	25 Kg	71"
6	09:31.25	09:31.29	09:33.12	1.47	2 BRICKS	25 Kg	71"
7	09:38.25	09:38.29	09:40.11	1.46	2 BRICKS	25 Kg	71"
8	09:45.25	09:45.29	09:47.12	1.47	2 BRICKS	25 Kg	71"
9	09:52.25	09:52.28	09:54.13	1.48	2 BRICKS	25 Kg	71"
10	09:59.25	09:59.29	10:01.09	1.44	2 BRICKS	25 Kg	71"
11	10:06.25	10:06.29	10:08.10	1.45	2 BRICKS	25 Kg	71"
12	10:13.25	10:13.28	10:15.06	1.41	2 BRICKS	25 Kg	71"
13	10:20.25	10:20.30	10:22.06	1.41	2 BRICKS	25 Kg	71"
14	10:27.25	10:27.29	10:29.11	1.46	2 BRICKS	25 Kg	71"
15	10:34.25	10:34.29	10:36.07	1.42	2 BRICKS	25 Kg	71"
16	10:41.25	10:41.30	10:43.06	1.41	2 BRICKS	25 Kg	71"
17	10:48.25	10:48.28	10:50.09	1.44	2 BRICKS	25 Kg	71"
18	10:55.25	10:55.29	10:57.13	1.48	2 BRICKS	25 Kg	71"
19	11:02.25	11:02.29	11:04.05	1.40	2 BRICKS	25 Kg	71"
20	11:09.25	11:09.29	11:11.09	1.44	2 BRICKS	25 Kg	71"
21	11:16.25	11:16.29	11:18.11	1.46	2 BRICKS	25 Kg	71"
22	11:23.25	11:23.29	11:25.13	1.48	2 BRICKS	25 Kg	71"
23	11:30.25	11:30.29	MISFIRE		2 BRICKS	25 Kg	71"
24	11:34.25	11:34.28	11:36.14	1.49	2 BRICKS	25 Kg	71"
25	11:41.25	11:41.30	11:43.16	1.50	2 BRICKS	25 Kg	71"
26	11:48.25	11:48.29	11:50.12	1.47	2 BRICKS	25 Kg	71"
27	11:55.25	11:55.29	11:57.13	1.48	2 BRICKS	25 Kg	71"
28	12:02.25	12:02.28	12:04.12	1.47	2 BRICKS	25 Kg	71"
29	12:09.25	12:09.29	12:11.10	1.45	2 BRICKS	25 Kg	71"
30	12:16.22	12:16.26	12:18.12	1.50	2 BRICKS	25 Kg	71"*
31	12:23.22	12:23.25	12;25.09	1.47	2 BRICKS	25 Kg	71"
32	12:30.22	12:30.25	12:32.08	1.46	2 BRICKS	25 Kg	71"
33	12:37.22	12:37.25	12:39.10	1.48	2 BRICKS	25 Kg	71"
34	12:44.22	12:44.26	12:46.08	1.46	2 BRICKS	25 Kg	71"
35	12:51.22	12:51.26	12:53.05	1.43	2 BRICKS	25 Kg	71"

* ADVANCED "LIGHT FUSE" BY 3 SECONDS

17 APRIL GMT ESP C4

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	19:29.25	19:29.28	19:31.09	1.44	2 BRICKS	25 Kg	71"
2	19:36.25	19:36.28	19:38.11	1.46	2 BRICKS	25 Kg	71"
3	19:43.25	19:43.29	19:45.11	1.46	2 BRICKS	25 Kg	71"
4	19:50.25	19:50.29	19:52.06	1.41	2 BRICKS	25 Kg	71"
5	19:57.25	19:57.28	19:59.11	1.46	2 BRICKS	25 Kg	71"
6	20:04.25	20:04.28	20:06.10	1.45	2 BRICKS	25 Kg	71"
7	20:11.25	20:11.28	20:13.09	1.45	2 BRICKS	25 Kg	71"
8	20:18.25	20:18.29	20:20.09	1.45	2 BRICKS	25 Kg	71"
9	20:25.25	20:25.29	20:27.05	1.40	2 BRICKS	25 Kg	71"
10	20:32.25	20:25.29	20:34.10	1.45	2 BRICKS	25 Kg	71"
11	20:39.25	20:39.29	20:41.09	1.44	2 BRICKS	25 Kg	71"
12	20:46.25	20:46.29	20:48.12	1.47	2 BRICKS	25 Kg	71"
13	20:53.25	20:53.29	20:55.11	1.46	2 BRICKS	25 Kg	71"
14	21:00.25	21:00.29	20:02.08	1.43	2 BRICKS	25 Kg	71"
15	21:07.25	21:07.28	21:09.09	1.44	2 BRICKS	25 Kg	71"
16	21:14.25	21:14.30	21:16.09	1.44	2 BRICKS	25 Kg	71"
17	21:21.25	21:21.29	21:23.07	1.42	2 BRICKS	25 Kg	71"
18	21:28.25	21:28.29	21:30.11	1.46	2 BRICKS	25 Kg	71"
19	21:35.25	21:36.30	21:37.12	1.47	2 BRICKS	25 Kg	71"
20	21:42.25	21:42.29	21:44.09	1.44	2 BRICKS	25 Kg	71"
21	21:49.25	21:49.29	21:51.09	1.44	2 BRICKS	25 Kg	71"
2	21:56.25	21:56.29	21:58.10	1.45	2 BRICKS	25 Kg	71"
23	22:03.25	22:03.28	22:05.09	1.44	2 BRICKS	25 Kg	71"
24	22:10.25	22:10.28	22:12.06	1.41	2 BRICKS	25 Kg	71"
25	22:17.25	22:17.28	22:19.05	1.40	2 BRICKS	25 Kg	71"
26	22:24.25	22:24.28	22:26.07	1.42	2 BRICKS	25 Kg	71"
27	22:31.25	22:31.28	22:33.15	1.50	2 BRICKS	25 Kg	71"
28	22:38.25	22:38.28	MISFIRE		2 BRICKS	25 Kg	71"
29	22:43.25	22:43.28	22:45.11	1.46	2 BRICKS	25 Kg	71"
30	22:50.25	22:50.28	MISFIRE		2 BRICKS	25 Kg	71"
31	22:55.25	22:55.30	22:57.10	1.45	2 BRICKS	25 Kg	71"
32	23:02.25	23:02.28	23:04.04	1.39	2 BRICKS	25 Kg	71"
33	23:09.25	23:09.29	23:11.09	1.44	2 BRICKS	25 Kg	71"
34	23:16.25	23:16.28	23:18.12	1.47	2 BRICKS	25 Kg	71"
35	23:23.25	23:23.28	23:25.09	1.44	2 BRICKS	25 Kg	71"
36	23:30.25	23:30.28	23:32.09	1.44	2 BRICKS	25 Kg	71"
37	23:37.25	23:37.29	MISFIRE		2 BRICKS	25 Kg	71"

18 APRIL GMT -ESP C2

SHOT #	LIGHT THE FUSE	IN THE WATER	SHOT TIME	BURN TIME	BALLAST	CHARGE SIZE	FUSE LENGTH
1	02:33.22	02:33.26	02:35.06	1.44	2 BRICKS	25 Kg	71"
2	02:41.22	02:41.26	02:43.04	1.42	2 BRICKS	25 Kg	71"
3	02:49.22	02:49.26	02:51.08	1.46	2 BRICKS	25 Kg	71"
4	02:57.22	02:57.25	02:59.07	1.45	2 BRICKS	25 Kg	71"
5	03:05.22	03:05.25	03:07.02	1.40	2 BRICKS	25 Kg	71"
6	03:13.22	03:13.25	03:15.10	1.48	2 BRICKS	25 Kg	71"
7	03:21.22	03:21.26	03:23.07	1.45	2 BRICKS	25 Kg	71"
8	03:29.22	03:29.26	03:31.05	1.43	2 BRICKS	25 Kg	71"
9	03:37.22	03:37.26	03:39.03	1.41	2 BRICKS	25 Kg	71"
10	03:45.22	03:45.26	03:47.06	1.44	2 BRICKS	25 Kg	71"
11	03.53.22	03:53.26	03:55.06	1.44	2 BRICKS	25 Kg	71"
12	04:01.22	04:01.26	04:03.11	1.49	2 BRICKS	25 Kg	71"
13	04:09.22	04:09.25	04:11.07	1.45	2 BRICKS	25 Kg	71"
14	04:17.22	04:17.25	04:17.10	1.48	2 BRICKS	25 Kg	71"
15	04:25.22	04:25.25	04:27.00	1.38	2 BRICKS	25 Kg	71"
16	04:33.22	04:33.25	04:35.06	1.44	2 BRICKS	25 Kg	71"
17	04:41.22	04:41.26	04:43.11	1.49	2 BRICKS	25 Kg	71"
18	04:49.22	04:49.25	04:51.04	1.42	2 BRICKS	25 Kg	71"
19	04:57.22	04:57.25	04:59.07	1.45	2 BRICKS	25 Kg	71"
?	05:05.22	05:05.26	05:07.05	1.43	2 BRICKS	25 Kg	71"
1	05:12.22	05:12.26	05:14.02	1.40	2 BRICKS	25 Kg	71"
22	05:19.22	05:19.26	05:21.09	1.47	2 BRICKS	25 Kg	71"
23	05:26.22	05:26.26	05:28.04	1.42	2 BRICKS	25 Kg	71"
24	05:33.22	05:33.26	05:35.06	1.44	2 BRICKS	25 Kg	71"
25	05:40.22	05:40.26	05:42.05	1.43	2 BRICKS	25 Kg	71"
26	05:47.22	05:47.26	05:49.03	1.41	2 BRICKS	25 Kg	71"
27	05:54.22	05:54.27	05:56.10	1.48	2 BRICKS	25 Kg	71"
28	06:01.22	06:01.26	06:03.05	1.43	2 BRICKS	25 Kg	71"
29	06:08.22	06:08.26	06:10.08	1.46	2 BRICKS	25 Kg	71"
30	06:15.22	06:15.26	06:17.02	1.40	2 BRICKS	25 Kg	71"
31	06:22.22	06:22.26	06:24.05	1.43	2 BRICKS	25 Kg	71"
32	06:29.22	06:29.26	06:31.06	1.44	2 BRICKS	25 Kg	71"
33	06:36.22	06:36.26	06:38.08	1.46	2 BRICKS	25 Kg	71"
34	06:43.22	06:43.25	06:45.09	1.47	2 BRICKS	25 Kg	71"
35	06:50.22	06:50.26	06:52.09	1.47	2 BRICKS	25 Kg	71"
36	06:57.22	06:57.26	07:00.17	2.55	2 BRICKS	25 Kg	71"